

Course Outline

Course Code : DBA3803
Course Title : Predictive Analytics in Business
Class Date : From 12/8/2024 To 15/11/2024
Semester : Semester 1, Academic Year 2024/2025
Faculty : Tan Hong Ming
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Overview

This introductory course focuses on key aspects of modern data science in the business world, particularly emphasizing methods in regression and classification. We will cover linear and polynomial regression, logistic regression, and essential techniques such as cross-validation, model selection, and regularization (including ridge and lasso). We'll also venture into nonlinear models, tree-based methods like random forests and boosting, support-vector machines, and neural networks. Finally, we will also touch on interpretable machine learning methods.

Course Objectives

Gain an understanding of key supervised learning methods including regression and classification techniques.

Learn to apply various data science tools and techniques such as linear and polynomial regression, logistic regression, cross-validation, and model selection.

Learn to apply theoretical concepts in practical, real-world business scenarios, enhancing analytical and decision-making skills.

Assessment

Assessment Components	Weightage
Class Participation	10%
Group Project	30%
Quiz	30%
Assignments	30%

Schedule and Outline

This is a rough guide

Lesson/ Week	Date	Session (lesson summary or outline / learning objectives / preparation / cases & assignments / follow-up readings & resources)
1	12 Aug	Introduction
2	19 Aug	Statistical Learning
3	26 Aug	Regression

4	2 Sep	Regression/Classification
5	9 Sep	Classification/Resampling Methods
6	16 Sep	Resampling Methods
R	23 Sep	Reading week
7	30 Sep	Model Selection
8	7 Oct	Model Selection
9	14 Oct	Tree based Methods
10	21 Oct	Support Vector Machines
11	28 Oct	Deep learning
12	4 Nov	Model Interpretability
13	11 Nov	In-class Quiz

General Guide & Reading (e.g. Case preparation guide, project report guide, main textbook & supplementary materials, etc)

Lecture Slides

Taddy, Matt. *Business data science* (2019).

Hull, John C. *Machine Learning in Business: An Introduction to the World of Data Science* (2020).

James, Gareth, et al. *An introduction to statistical learning* (2013).

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